

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently amended) A distillation system for vaporizing a process liquid from a process liquid mass to obtain a vapour stream therefrom, said system comprising:

a distillation means comprising a distillation vessel and heating means for heating said process liquid within said vessel; and

conduit means extending between and communicating with said distillation vessel and said process liquid ~~mass~~, mass;

said distillation vessel, said conduit means and said process liquid mass forming a closed system, whereby heating process liquid feed in said distillation vessel to vaporize liquid therefrom causes vapour to exit through said conduit means for recycling into said process liquid mass and subsequent cooling of said distillation vessel causes said vapour to condense within said distillation vessel and create a vacuum which draws further process liquid feed into said distillation vessel.

2. (Currently amended) A distillation system ~~for vaporizing a process liquid from a process liquid mass to obtain a vapour stream therefrom, said system comprising:~~

~~a distillation means comprising a distillation vessel and heating means for heating said process liquid within said vessel;~~ as claimed in claim 1 wherein said conduit means

comprises first conduit means extending between and communicating with said distillation vessel and ~~said process liquid mass~~;

second conduit means for conveying vapour from said distillation vessel;
said distillation vessel, said ~~first~~ conduit means and said process liquid mass
forming a closed system, whereby heating process liquid feed in said distillation vessel to
vaporize liquid therefrom causes vapour to exit through said second conduit means and
subsequent cooling of said distillation vessel causes said vapour to condense within said
distillation vessel and create a vacuum which draws further process liquid mass through
said first conduit into said distillation vessel; and

valve means located in said ~~conduits~~ first and second conduit means to permit
unidirectional passage of process liquid feed from said process liquid mass into said
distillation vessel and to permit unidirectional passage of vapour from said distillation
vessel.

3. (Currently amended) A contaminated solvent recycling system for recycling clean
solvent from a contaminated solvent mass, said recycling system comprising:

a distillation means comprising a distillation vessel and heating means for heating
contaminated solvent feed within said vessel; and

conduit means extending between and communicating with said distillation vessel
and said contaminated solvent ~~mass~~, mass;

said distillation vessel, said conduit means and said contaminated solvent mass
forming a closed system, whereby heating contaminated solvent feed in said distillation
vessel to distill solvent therefrom causes solvent vapour to exit through said conduit means

for recycling into said contaminated solvent mass and subsequent cooling of said distillation vessel causes said vapour to condense within said distillation vessel and create a vacuum which draws further contaminated solvent feed into said distillation vessel.

4. (Currently amended) A contaminated solvent recycling system ~~for recycling clean solvent from a contaminated solvent mass, said recycling system comprising:~~ as claimed in claim 3 wherein said conduit means comprises

~~a distillation means comprising a distillation vessel and heating means for heating contaminated solvent feed within said vessel;~~

first conduit means extending between and communicating with said distillation vessel and ~~said contaminated solvent mass,~~

second conduit means for conveying solvent vapour from said distillation vessel;

said distillation vessel, said ~~first~~ conduit means and said contaminated solvent mass forming a closed system, whereby heating contaminated solvent feed in said distillation vessel to ~~distill solvent therefrom causes solvent~~ vaporize liquid therefrom causes vapour to exit through said second conduit means and subsequent cooling of said distillation vessel causes said vapour to condense within said distillation vessel and create a vacuum which draws further contaminated solvent feed through said first conduit into said distillation vessel; and

valve means located in said ~~conduits~~ first and second conduit means to permit unidirectional passage of contaminated solvent feed from said contaminated solvent mass into said distillation vessel and to permit unidirectional passage of solvent vapour from said distillation vessel.

5. (Currently amended) A contaminated solvent recycling system as claimed in claim 4 wherein said valve means comprises a one-way valve located in each of said ~~conduits~~ first and second conduit means.

6. (Currently amended) A contaminated solvent recycling system as claimed in claim 4 wherein said valve means comprises a two-way valve located in each of said ~~conduits~~ first and second conduit means, said two-way valves being operative to selectively communicate said ~~conduits~~ first and second conduit means with said distillation vessel.

7. (Currently amended) A contaminated solvent recycling system as claimed in claim 4 wherein said first and second ~~conduits~~ conduit means are branches of a ~~single conduit~~ common conduit means communicating with said distillation vessel and said valve means is located at a junction between said single conduit means and said first and second ~~conduits~~ conduit means and is operative to selectively communicate said second conduit means with said common conduit means during heating of said distillation vessel and said first conduit means with said common conduit means during cooling of said distillation vessel.

8. (Currently amended) A contaminated solvent recycling system as claimed in ~~any one of claims 4-7~~ claim 4 wherein said second conduit means extends between and communicates with said contaminated solvent mass.

9. (Currently amended) A contaminated solvent recycling system as claimed in ~~any one of claims 4-7~~ claim 4 wherein said second conduit means conveys solvent from said distillation vessel into a collection container which is separate from said contaminated solvent mass.

10. (Currently amended) A contaminated solvent recycling system ~~for recycling clean solvent from a~~ as claimed in claim 4 wherein said contaminated solvent mass containing contains a plurality of solvent fractions, ~~said recycling system comprising:~~
~~a distillation means comprising a distillation vessel and heating means for heating contaminated solvent feed within said vessel to vaporize said different solvent fractions;~~
~~first conduit means extending between said distillation vessel and said contaminated solvent mass;~~
and said second conduit means comprises a plurality of second ~~conduit means~~ conduits for conveying said different solvent fractions from said distillation vessel to separate collection ~~containers;~~
~~said distillation vessel, said first conduit means and said contaminated solvent mass forming a closed system, whereby heating contaminated solvent feed in said distillation vessel to distill solvent therefrom causes solvent vapour to exit through said second conduit means and subsequent cooling of said distillation vessel causes said vapour to condense within said distillation vessel and create a vacuum which draws further contaminated solvent feed through said first conduit into said distillation vessel; first valve means located in said~~

containers and said valve means comprises first valve means located in said first
conduit to permit unidirectional passage of contaminated solvent feed from said
contaminated solvent mass into said distillation ~~vessel~~; vessel and a plurality of second
valve means respectively located in said second conduits to selectively permit passage of
said solvent fractions from said distillation vessel.

11. (Original) A contaminated solvent recycling system as claimed in claim 3, further
comprising vacuum pump means in communication with said distillation vessel to control
the internal pressure of said vessel during distillation of said solvent from said
contaminated solvent feed.

12. (Original) A contaminated solvent recycling system as claimed in claim 11,
wherein said vacuum pump means is located in said conduit means.

13. (Original) A contaminated solvent recycling system as claimed in claim 11,
wherein said contaminated solvent mass is in a sealed container and said system further
comprises vacuum pump means in communication with said sealed container to apply a
vacuum above said contaminated solvent mass to draw solvent vapour through said second
conduit and said contaminated solvent mass and control the internal pressure of said vessel
during distillation of said solvent from said contaminated solvent feed.

14. (Currently amended) A contaminated solvent recycling system as claimed in ~~any of~~
~~claims 4-9~~ claim 4 further comprising vacuum pump means in communication with said

distillation vessel to control the internal pressure of said vessel during distillation of said solvent from said contaminated solvent feed.

15. (Original) A contaminated solvent recycling system as claimed in claim 14, wherein said vacuum pump means is located in said second conduit means.

16. (Original) A contaminated solvent recycling system as claimed in claim 8, wherein said contaminated solvent mass is in a sealed container and said system further comprises vacuum pump means in communication with said sealed container to apply a vacuum above said contaminated solvent mass to draw solvent vapour through said contaminated solvent mass and control the internal pressure of said vessel during distillation of said solvent from said contaminated solvent feed.

17. (Original) A contaminated solvent recycling system as claimed in claim 10, further comprising vacuum pump means in communication with said distillation vessel to control the internal pressure of said vessel during distillation of said solvent from said contaminated solvent feed.

18. (Currently amended) A contaminated solvent recycling system as claimed in ~~claim 14~~ claim 17, wherein said vacuum pump means comprises a plurality of vacuum pumps each located in a respective one of said second conduit means.

19. (Currently amended) A contaminated solvent recycling system as claimed in ~~any one of claims 3-18~~ claim 3, wherein said distillation vessel comprises a distillation zone and a separate waste collection zone for collecting waste from the distillation process.

20. (Original) A contaminated solvent recycling system as claimed in claim 19, wherein said heating means applies heat only to said distillation zone.

21. (Currently amended) A contaminated solvent recycling system as claimed in claim 20, ~~wherein said heating means comprises~~ further comprising an oil bath surrounding said distillation zone and said heating means ~~for~~ heating said oil bath to a sufficient temperature to cause distillation of said solvent from said contaminated solvent feed.

22. (Original) A contaminated solvent recycling system as claimed in claim 20, wherein said heating means comprises an immersion heater extending into said distillation zone for heating said contaminated solvent feed to a sufficient temperature to cause distillation of said solvent from said contaminated solvent feed.

23. (Currently amended) A distillation unit for use in a contaminated solvent recycling system for recycling clean solvent from a contaminated solvent feed, said distillation unit comprising:

a distillation vessel and heating means for heating contaminated solvent feed within said vessel;

said distillation vessel comprising a distillation zone and a separate waste collection zone for collecting waste from the distillation process;

means for removing waste from said distillation zone into said waste collection zone before said waste accumulates in said distillation zone to a sufficient extent to impede the operation of said distillation unit; and

means for introducing said contaminated solvent feed into said distillation zone; and means for removing said waste from said waste collection zone.

24. (Currently amended) A distillation unit ~~for use in a contaminated solvent recycling system for recycling clean solvent from a contaminated solvent feed, said distillation unit comprising:~~

~~a distillation vessel and heating means for heating contaminated solvent feed within said vessel;~~

~~said distillation vessel comprising a distillation zone and a separate waste collection zone located beneath said distillation zone for collecting waste from the distillation process before said waste accumulates in said distillation zone to a sufficient extent to impede the operation of said distillation unit;~~

~~means for removing waste from said distillation zone into said waste collection zone before said waste accumulates in said distillation zone to a sufficient extent to impede the operation of said distillation unit;~~

~~means for introducing said contaminated solvent feed into said distillation zone; and 30~~

~~means for removing said waste from~~ as claimed in claim 23, wherein said waste collection zone is located beneath said distillation zone.

25. (Currently amended) A distillation unit as claimed in ~~claim 23 or 24, wherein said heating means comprises~~ claim 23, further comprising an oil bath surrounding said distillation zone and said heating means ~~for~~ heating said oil bath to a sufficient temperature to cause distillation of said solvent from said contaminated solvent feed.

26. (Currently amended) A distillation unit as claimed in ~~claim 23 or 24,~~ claim 23, wherein said heating means comprises an immersion heater extending into said distillation zone for heating said contaminated solvent feed to a sufficient temperature to cause distillation of solvent from said contaminated solvent feed.